

Application No 09/813,905

Reply to Examiner's telephone call and fax of August 11, 2003

Amendments to the Claims Since the Proposed Claims of August 11, 2003 were not entered:

Claims 1 – 8, 17, 18, 23, 26, 30, 31 and 32 (canceled)

Claim 24 (new) A percutaneously insertable intra-aortic balloon catheter comprising a catheter tube, a balloon membrane, a tip, and a gas lumen insert, said catheter tube comprising an inner lumen and a gas lumen disposed within an outer surface of the catheter tube and extending the length of the catheter tube, a proximal end of the balloon membrane is connected to a distal end of the catheter tube, a distal end of the balloon membrane is connected to the tip, the gas lumen insert comprising a removable elongate body at least partially disposed within the gas lumen, further comprising a coil and a connector, said connector being connected to a proximal end of the catheter and having a gas lumen port and an inner lumen port, said gas lumen port communicating with said gas lumen and said inner lumen port communicating with said inner lumen, said gas lumen port being connected to a distal end of an extracorporeal tube, the gas lumen insert passing through said gas lumen port and said extracorporeal tube, said coil being disposed in the extracorporeal tube between an inner surface of the extracorporeal tube and an outer surface of the gas lumen insert.

Claim 25 (new) A percutaneously insertable intra-aortic balloon catheter comprising a catheter tube, a balloon membrane, a tip, and a gas lumen insert, said catheter tube comprising an inner tube portion, defining an inner lumen, and an outer tube portion, defining gas lumen, a distal portion of said inner tube portion extending beyond a distal end of the outer tube portion and being connected to a distal end of the balloon membrane and to the tip, the gas lumen insert comprising a removable elongated body at least partially disposed within the gas lumen, further comprising a coil and a connector, said connector being connected to a proximal end of the catheter and having a gas lumen port and an inner lumen port, said gas lumen port communicating with said gas lumen and said inner lumen port communicating with said inner lumen, said gas lumen port being connected to a distal end of an extracorporeal tube, the gas lumen insert passing

through said gas lumen port and said extracorporeal tube, said coil being disposed in the extracorporeal tube between an inner surface of the extracorporeal tube and an outer surface of the gas lumen insert.

Claim 27 (new) A percutaneously insertable intra-aortic balloon catheter comprising an outer tube, an inner tube, a balloon membrane, a tip, and a gas lumen insert, said inner tube being disposed within the outer tube, a distal portion of said inner tube extending beyond a distal end of the outer tube and being connected to a distal end of the balloon membrane and the tip, the gas lumen insert comprising a removable elongate body at least partially disposed within the gas lumen, further comprising a coil and a connector, said connector being connected to a proximal end of the catheter and having a gas lumen port and an inner lumen port, said gas lumen port communicating with said gas lumen and said inner lumen port communicating with said inner lumen, said gas lumen port being connected to a distal end of an extracorporeal tube, the gas lumen insert passing through said gas lumen port and said extracorporeal tube, said coil being disposed in the extracorporeal tube between an inner surface of the extracorporeal tube and an outer surface of the gas lumen insert.

Claim 28 (new) A percutaneously insertable intra-aortic balloon catheter comprising a catheter tube, a balloon membrane, a tip, and a gas lumen insert, said catheter tube comprising an inner lumen and a gas lumen disposed within an outer surface of the catheter tube and extending the length of the catheter tube, a proximal end of the balloon membrane is connected to a distal end of the catheter tube, a distal end of the balloon membrane is connected to the tip, the gas lumen insert comprising a removable elongate body at least partially disposed within the gas lumen, further comprising a coil and a connector, said connector being connected to a proximal end of the catheter and having a gas lumen port and an inner lumen port, said gas lumen port communicating with said gas lumen and said inner lumen port communicating with said inner lumen, said gas lumen port being connected to a distal end of an extracorporeal tube, the gas lumen insert passing through said gas lumen port and said extracorporeal tube, said coil being disposed in the extracorporeal tube between an inner surface of the extracorporeal tube and an outer surface of the gas lumen insert, said gas lumen insert terminating in a one-way valve, said

extracorporeal tube terminating in a connector for connection to said one-way valve.

Claim 29 (new) A percutaneously insertable intra-aortic balloon catheter comprising a catheter tube, a balloon membrane, a tip, and a gas lumen insert, said catheter tube comprising an inner tube portion, defining an inner lumen, and an outer tube portion, defining gas lumen, a distal portion of said inner tube portion extending beyond a distal end of the outer tube portion and being connected to a distal end of the balloon membrane and to the tip, the gas lumen insert comprising a removable elongated body at least partially disposed within the gas lumen, further comprising a coil and a connector, said connector being connected to a proximal end of the catheter and having a gas lumen port and an inner lumen port, said gas lumen port communicating with said gas lumen and said inner lumen port communicating with said inner lumen, said gas lumen port being connected to a distal end of an extracorporeal tube, the gas lumen insert passing through said gas lumen port and said extracorporeal tube, said coil being disposed in the extracorporeal tube between an inner surface of the extracorporeal tube and an outer surface of the gas lumen insert, said gas lumen insert terminating in a one-way valve, said extracorporeal tube terminating in a connector for connection to said one-way valve.

Claim 9 (amended) A percutaneously insertable intra-aortic balloon catheter comprising a catheter tube, a balloon membrane, a tip, and a gas lumen insert of half circle or crescent shape, said catheter tube comprising an inner tube portion, defining an inner lumen, and an outer tube portion defining a gas lumen, a distal portion of said inner tube portion extending beyond a distal end of the outer tube portion and being connected to a distal end of the balloon membrane and to the tip, the gas lumen insert comprising a removable elongated body at least partially disposed within the gas lumen, wherein the distal portion of the inner tube portion is made form a different material than the portion of the inner tube portion disposed within an outer surface of the outer tube portion.

Claim 10 (amended) A percutaneously insertable intra-aortic balloon catheter comprising a catheter tube, a balloon membrane, a tip, and a gas lumen insert, said catheter tube comprising an inner tube portion, defining an inner lumen, and an outer tube portion, defining gas lumen, a distal portion of said inner tube portion extending beyond a distal end of the outer tube portion and being connected to a distal end of the balloon membrane and to the tip, the gas lumen insert

comprising a removable elongated body at least partially disposed within the gas lumen, wherein the distal portion of the inner tube portion is made from a different material than the portion of the inner tube portion disposed within an outer surface of the catheter, and wherein the distal portion of the inner tube portion and a distal end of the catheter are connected at a joint, the gas lumen insert extends beyond the distal end of the outer tube portion and overlaps the joint.

Claim 11 (amended) A percutaneously insertable intra-aortic balloon catheter comprising an outer tube, an inner tube, a balloon membrane, a tip, and a gas lumen insert of half circle or crescent shape, said inner tube being disposed within the outer tube, a distal portion of said inner tube extending beyond a distal end of the outer tube and being connected to a distal end of the balloon membrane and the tip, the gas lumen insert comprising a removable elongate body at least partially disposed within the gas lumen, wherein the distal portion of the inner tube is made from a different material than the portion of the inner tube disposed within an outer surface of the catheter.

Claim 12 (amended) A percutaneously insertable intra-aortic balloon catheter comprising an outer tube, an inner tube, a balloon membrane, a tip, and a gas lumen insert, said inner tube being disposed within the outer tube, a distal portion of said inner tube extending beyond a distal end of the outer tube and being connected to a distal end of the balloon membrane and the tip, the gas lumen insert comprising a removable elongate body at least partially disposed within the gas lumen, wherein the distal portion of the inner tube is made from a different material than the portion of the inner tube disposed within an outer surface of the catheter, and wherein the distal portion of the inner tube portion and a distal end of the catheter are connected at a joint, the gas lumen insert extends beyond the distal end of the outer tube and overlaps the joint.

Claim 15 (amended) A percutaneously insertable intra-aortic balloon catheter comprising a catheter tube, a balloon membrane, a tip, and a gas lumen insert, said catheter tube comprising an inner lumen and a gas lumen disposed within an outer surface of the catheter tube and extending the length of the catheter tube, a proximal end of the balloon membrane is connected to a distal end of the catheter tube, a distal end of the balloon membrane is connected to the tip, the gas lumen insert comprising a removable elongate body at least partially disposed within the gas lumen, wherein the catheter tube is at least partially made from polyurethane and the gas lumen

insert is at least partially made from polyether block amide.

Claim 33 (new) A percutaneously insertable intra-aortic balloon catheter comprising a catheter tube, a balloon membrane, an inner tube, a tip, and a gas lumen insert of half circle or crescent shape, said catheter tube comprising an inner tube portion and an outer tube portion defining a gas lumen, said inner tube being at least partially disposed within the outer tube portion and extending beyond a distal end of the outer tube portion and being connected to a distal end of the balloon membrane and to the tip, the gas lumen insert comprising a removable elongate body at least partially disposed within the gas lumen, wherein the catheter tube is at least partially made from polyurethane and the gas lumen insert is at least partially made from polyether block amide.

Claim 16 (amended) A percutaneously insertable intra-aortic balloon catheter comprising an outer tube, an inner tube, a balloon membrane, a tip, and a gas lumen insert, said inner tube being disposed within the outer tube, a distal portion of said inner tube extending beyond a distal end of the outer tube and being connected to a distal end of the balloon membrane and the tip, the gas lumen insert comprising a removable elongate body at least partially disposed within the gas lumen, wherein the outer tube is at least partially made from polyurethane and the gas lumen insert is at least partially made from polyether block amide.